MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories

Michigan Department of Community Health
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New updates in this issue:

- **Michigan:** A long term care outbreak of respiratory illness is confirmed as human metapneumovirus.
- **National:** During week 7, influenza activity remained at approximately the same levels.
- **International:** WHO reports multiple human H5N1 avian influenza cases in Vietnam and Egypt.

****2009 Influenza A (H1N1) virus Updates****

Please continue to reference the MDCH influenza website at www.michigan.gov/flu for additional 2009 H1N1 information. Local health departments can find guidance documents in the MI-HAN document library. In addition, additional laboratory-specific information is located at the Bureau of Laboratories H1N1 page at http://www.michigan.gov/mdch/0,1607,7-132-2945_5103-213906--,00.html.

****Influenza Surveillance Reports****

Michigan Disease Surveillance System: The week ending February 27th showed aggregate influenza, individual influenza, and 2009 novel influenza cases similar to the previous week's levels. All flu types are lower than the levels seen this time last year.

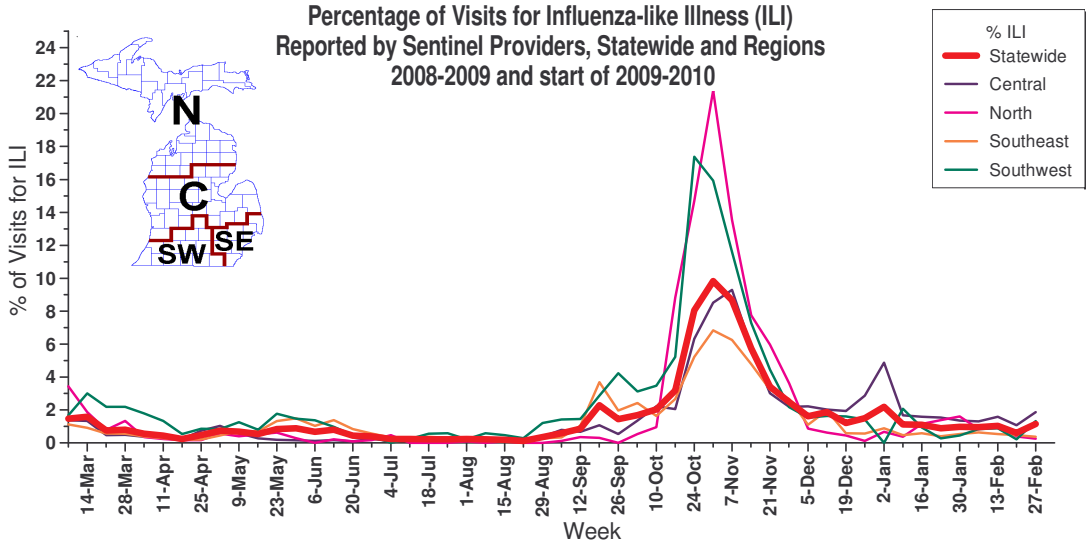
During February 21-27, 2010, 9333 cases of flu-like illness and confirmed and probable cases of seasonal and novel influenza were reported in Michigan. 2112 hospitalizations and 78 deaths associated with influenza were reported during this time. This report is updated every Tuesday by 5:00 pm and can be accessed at "Current H1N1 Activity" on this website: http://www.michigan.gov/h1n1flu.

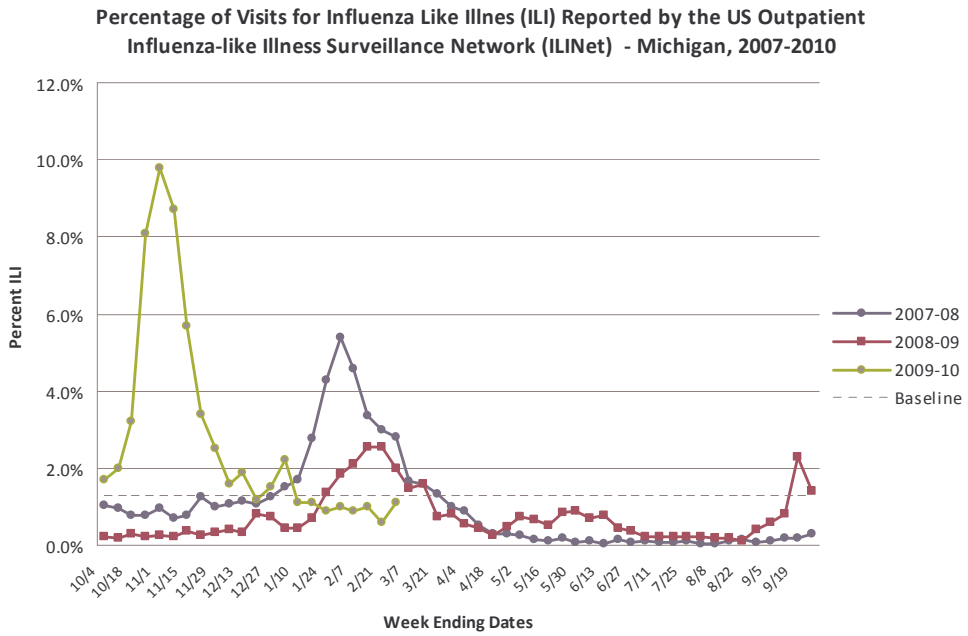
Emergency Department Surveillance: Emergency department visits from constitutional and respiratory complaints were consistent with previous week's levels. Both constitutional and respiratory complaints are comparable to what was seen at this time last year. In the past week, there were six constitutional alerts in the C(4), SW(1), and N(1) Influenza Surveillance Regions, and two respiratory alerts in the C(1) and N(1) Influenza Surveillance Regions.

Over-the-Counter Product Surveillance: Overall, OTC products experienced fluctuating sales for the past two weeks; however, by the week's end, all indicators were near the previous week's levels. Except for the small increase in chest rub sales, sales are consistent with those seen at this time last year.

Sentinel Provider Surveillance (as of March 4): During the week ending February 27, 2010, the proportion of visits due to influenza-like illness (ILI) increased to 1.1% overall; 103 patient visits due to ILI were reported out of 8,967 office visits. Thirty-three sentinel sites provided data for this report. Activity increased in two surveillance regions: Central (1.9%) and Southwest (1.3%) and decreased in the remaining two surveillance regions: North (0.2%) and Southeast (0.4%). Please note that these rates may change as additional reports are received.

As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.





Laboratory Surveillance (as of February 27): During February 21-27, MDCH Bureau of Laboratories identified no influenza isolates. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 605 influenza isolates:

- 2009 Influenza A (H1N1): 604
- Influenza B: 1

14 sentinel labs reported for the week ending February 27, 2010. 2 labs reported sporadic influenza A activity (SE, C). No labs reported influenza B positives. 10 labs reported low or increasing RSV positives (SE, SW, C, N), and 4 labs had moderately elevated RSV positives (SE, SW, C).

Michigan Influenza Antigenic Characterization (as of March 4): One 2009 H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010-11 Northern Hemisphere vaccine.

Michigan Influenza Antiviral Resistance Data (as of March 4): Results are currently not available for antiviral resistance at CDC for the 2009-2010 season.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at http://www.cdc.gov/H1N1flu/recommendations.htm.

Influenza-Associated Pediatric Mortality (as of March 4): Five 2009 H1N1 influenza-associated pediatric mortalities (SE(3), SW, N) have been reported to MDCH for the 2009-2010 influenza season.

***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of March 4): Seven congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and two outbreaks associated with positive influenza A tests (1C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 1 long term care facility. Human metapneumovirus was confirmed in one outbreak in a long term care facility (SE).

During fall 2009, 567 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 55, Region 2N - 4, Region 2S – 8, Region 3 - 54, Region 5 - 153, Region 6 - 100, Region 7 - 109, Region 8 - 84) were reported.

National (CDC [edited], February 26): During week 7 (Feb. 14-20, 2010), influenza activity remained at approximately the same levels as last week in the U.S. 185 (4.4%) specimens tested by U.S. World Health Organization and National Respiratory and Enteric Virus Surveillance System collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. All subtyped influenza A viruses reported to CDC were 2009 influenza A (H1N1) viruses. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Three influenza-associated pediatric deaths were reported. One death was associated with 2009 influenza A (H1N1) virus infection and two deaths were associated with an influenza A virus for which the subtype was undetermined. The proportion of outpatient visits for influenza-like illness (ILI) was 1.8% which is below the national baseline of 2.3%. Three of 10 regions (Regions 1, 4, and 7) reported ILI above region-specific baseline levels. No states reported widespread influenza activity, three states reported regional influenza activity, Puerto Rico and eight states reported local influenza activity, the District of Columbia, Guam, and 35 states reported sporadic influenza activity, the U.S. Virgin Islands and four states reported no influenza activity.

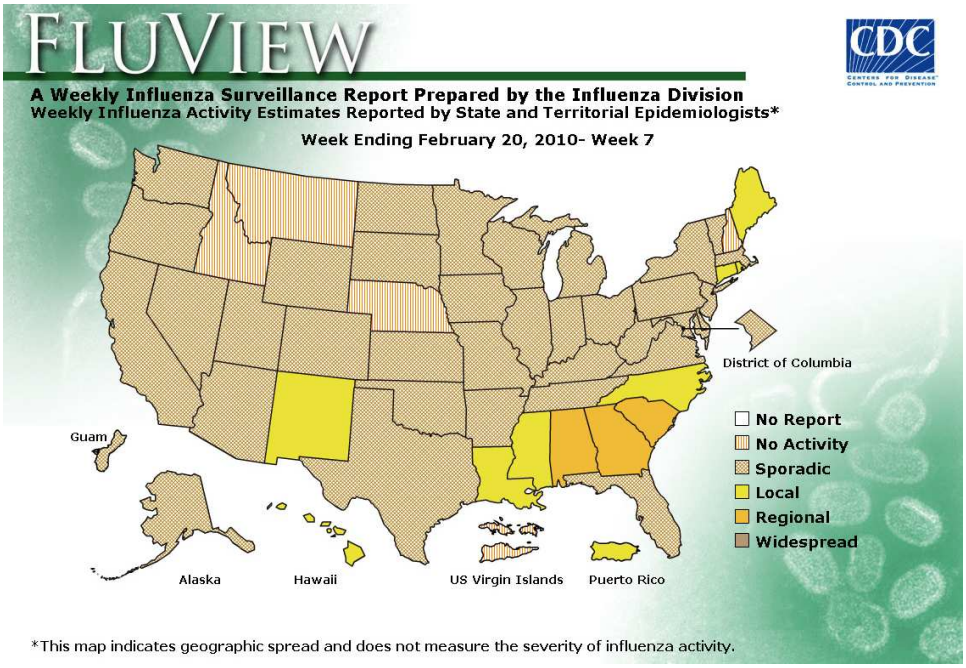
To access the entire CDC weekly surveillance report, visit http://www.cdc.gov/flu/weekly/fluactivity.htm

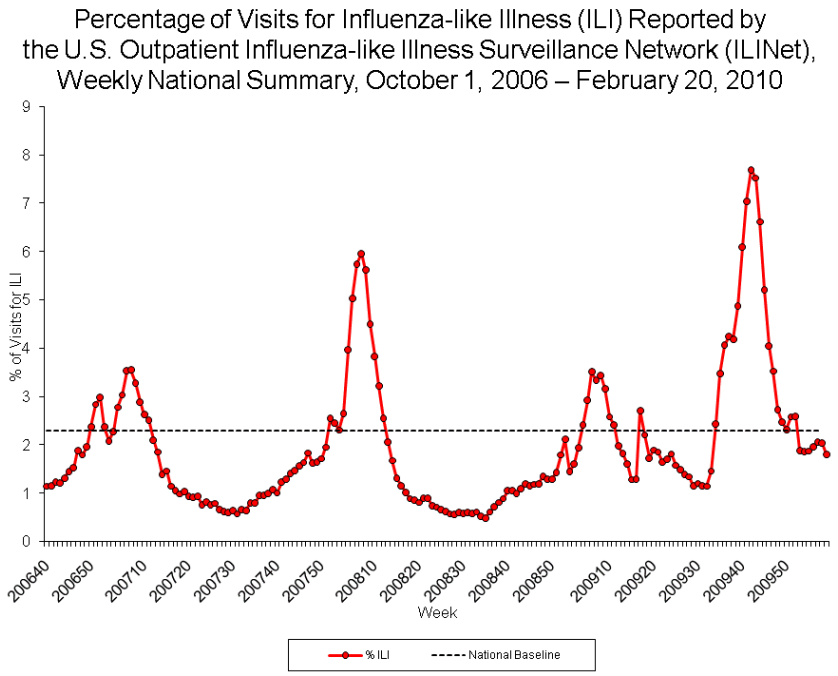
From http://www.cdc.gov/h1n1flu/updates/us/#totalcases:

U.S. Influenza and Pneumonia-Associated Hospitalizations and Deaths from Aug 30, 2009–Feb 20, 2010

Cases Defined by	Hospitalizations	Deaths
Influenza Laboratory-Tests**	40,618	1,994

**States report weekly to CDC either 1) laboratory-confirmed influenza hospitalizations and deaths or 2) pneumonia and influenza syndrome-based cases of hospitalization and death resulting from all types or subtypes of influenza. Although only the laboratory confirmed cases are included in this report, CDC continues to analyze data both from laboratory confirmed and syndromic hospitalizations and deaths.





International (WHO Pandemic update 89 [edited], February 26): In Southeast Asia, pandemic influenza virus continued to circulate in areas, however, the overall intensity of respiratory diseases activity remained low and unchanged, except in a few countries. In Brunei Darussalam, during February 2009, influenza activity was reported to be geographically widespread and was associated with an increasing trend and high intensity of respiratory diseases. Both Myanmar and Thailand have reported an increasing trend of respiratory diseases associated with geographically regional spread of influenza for the first half of February 2009, however, overall intensity currently remains low in both countries. In Thailand, approximately one third of provinces reported that >5% of medical visits were due to ILI during the most recent reporting week. In East Asia, virologic surveillance data suggest that pandemic influenza and seasonal influenza type B viruses continue to co-circulate. A recent increase in ILI activity in Mongolia may be due to an increase in the circulation of seasonal influenza type B viruses. Overall influenza activity continues to decline and return to baseline levels in both Japan and the Republic of Korea (S. Korea). In Hong Kong SAR (China) and in Chinese Taipei, pandemic influenza virus continues to circulate at low levels and overall ILI activity is substantially lower than what was observed peaks of activity during the fall months. In South Asia, overall influenza activity remained low, however, pandemic influenza virus transmission persists in the western part of India.

In Europe, pandemic influenza virus transmission persists across parts of central and southeastern Europe, but overall intensity remained low, except for Greece, Bulgaria, Turkey, Slovakia, the Republic of Moldova, and parts of the Russian Federation which continued to report a moderate intensity respiratory diseases activity. Although an increasing trend of respiratory diseases continued to be reported in Georgia, Slovakia, and parts of the Russian Federation, the increased activity may be due to other circulating respiratory viruses. Among countries testing at least 20 sentinel respiratory specimens during the past reporting week, none reported that more than 20% of specimens had tested positive for influenza.

In North Africa and West Asia, pandemic influenza virus continues to circulate at low levels as rates of illness in most countries in the region continued to decline or return to baseline. In Afghanistan, an increasing trend of respiratory diseases with moderate healthcare impact was report, however, it is unknown if the recent increase is associated with circulation of influenza virus.

In Sub-Saharan Africa, limited data suggest that pandemic influenza virus transmission continued to be sporadic in most areas of the continent. Several countries in West Africa continue to report slight increases in the numbers of confirmed cases of pandemic influenza indicating that community transmission is likely beginning in the area; however, data are very limited.

In the Americas, both in the tropical and northern temperate zones, pandemic influenza virus continues to circulate at low levels but overall pandemic influenza activity continued to decline or remain low in most places. In Central America and Caribbean, pandemic influenza virus transmission persists but overall activity remains low or unchanged in most places.

Pandemic influenza (H1N1) 2009 virus continues to be the predominant influenza virus circulating worldwide. In addition to the increasing proportion of seasonal influenza type B viruses recently detected in China, low levels of seasonal H3N2 and type B viruses are circulating in parts of Africa, and Asia.

In summary, pandemic influenza virus continues to circulate widely in the tropical regions and is persisting in some areas of in parts of Europe. Respiratory disease activity is increasing in many areas of the world due to increasing transmission of influenza type B and Respiratory Syncytial Virus. Seasonal influenza H3N2 continues to be detected in areas of Asia and east Africa.

MDCH reported **SPORADIC INFLUENZA ACTIVITY** to the CDC for the week ending February 27, 2010.

For those interested in additional influenza vaccination and education information, the MDCH *FluBytes* is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Novel Influenza Activity and Other News

WHO Pandemic Phase: Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

International, Human (WHO [edited], March 4): The Ministry of Health [Vietnam] has reported three new confirmed cases of human infection with the H5N1 avian influenza virus, including one fatality. Two cases have been confirmed at the National Institute of Hygiene and Epidemiology (NIHE) and one case has been confirmed at the Pasteur Institute, Ho Chi Minh City.

The first case is a 3 year-old female residing in Ninh Hoa District, Khanh Hoa Province. She developed symptoms on 27 January 2010, and was hospitalized at Ninh Hoa district hospital on 28 January. She is recovering well. The source of exposure is currently under investigation. Her family raises chickens but did not report any mass poultry illness or death. However, Ninh Hoa District and Van Ninh District are currently being monitored because of recent H5N1 poultry outbreaks.

The second case was a 38 year-old female residing in Cai Be District, Tien Giang Province. She developed symptoms on 13 February 2010. The patient was admitted to the Sa Dec Hospital in Dong Thap Province on 21 February where she died on 23 February. An epidemiological investigation showed that the patient had slaughtered and processed sick water fowl.

The third case is a 17 year-old female residing in Son Duong District, Tuyen Quang Province. She developed symptoms on 19 February 2010 and was taken to the Son Duong District General Hospital on 24 February where she is currently being treated for mild breathing difficulties. Approximately, 10 days ago, there were unexplained deaths of chicken in the patient's household. She participated in the disposal of the dead poultry.

Of the 115 cases confirmed to date in Viet Nam, 58 have been fatal.

International, Human (WHO [edited], March 4): The Ministry of Health of Egypt has announced five new cases of human H5N1 avian influenza infection.

The first case is a 53 year-old male from Shobra Elkhima district, Qaliobia Governorate. He developed symptoms on 27 February and was hospitalized on 27 February, where he received oseltamivir treatment. He is in a critical condition. The second case is a 1 year-old male from Banha district, Qaliobia Governorate. He developed symptoms on 22 February and was hospitalized on 23 February, where he received oseltamivir treatment. He is in a stable condition. The third case is a 10 year-old male from Meet Ghamr district, Dakalia Governorate. He developed symptoms on 10 February and was hospitalized on 14 February, where he received oseltamivir treatment. He is in a moderate condition. The fourth case is a 30 year-old female from Kellin District, Kafr El-Sheik Governorate. She developed symptoms on 10 February and was hospitalized on 11 February, where she received oseltamivir treatment. She is in stable condition. The fifth case is a 13 year-old male from Kafr El-Sheik District, Kafr El-Sheik Governorate. He developed symptoms on 10 February and was hospitalized on 14 February where he received oseltamivir treatment. He is in stable condition.

Investigations into the source of infection indicated that the five cases had exposure to sick and dead poultry. The cases were confirmed by the Egyptian Central Public Health Laboratories, a National Influenza Center of the WHO Global Influenza Surveillance Network (GISN). Of the 104 laboratory confirmed cases of Avian influenza A(H5N1) reported in Egypt, 30 have been fatal.

International, Swine (Hong Kong Government press release [edited], February 26): The University of Hong Kong (HKU) had found in its regular influenza virus surveillance programme that one sample taken from a pig at the Sheung Shui Slaughterhouse on 7 Jan 2010 contained a virus which was essentially a swine influenza virus but had picked up a pandemic H1N1 gene by genetic reassortment. There is no cause for alarm for public health and pork remains safe for consumption. The government is closely monitoring developments and shall continue to keep the public informed.

This is the 1st time that reassortment of swine influenza virus with the pandemic H1N1 virus has been found in the surveillance programme. Prof Malik Peiris, the HKU expert in charge of the surveillance programme, considered that the findings of reassortment between the pandemic H1N1 virus and swine influenza virus was not totally unexpected. These events were likely occurring worldwide and its detection in Hong Kong was purely the consequence of intensive surveillance. Further tests are being conducted by HKU to determine if there are any particular characteristics of this strain.

A spokesman for the Centre for Food Safety (CFS) reaffirmed that the World Health Organization (WHO), World Organisation for Animal Health (OIE) and Food and Agriculture Organization of the United Nations (FAO) had stated that pork and pork products which were handled properly and thoroughly cooked were safe for human consumption. It is safe to eat pork and pork products that are cooked to an internal temperature of 70 degrees Celsius [158 deg F] or above.

A spokesman for the Centre for Health Protection also said: "Laboratory surveillance on human specimens by the Department of Health (DH) has not detected similar viruses in humans. There is no sign that the virus is present in Hong Kong population at this time. The DH will maintain intensive surveillance of influenza in humans. Preliminary findings also show that the virus is sensitive to antiviral drug, oseltamivir."

The CFS spokesman said: "The sample was taken from a pig imported from the mainland. We have informed the mainland authorities so that they can further step up the monitoring and inspection of the registered farms supplying live pigs to Hong Kong." All imported live pigs from the mainland come from registered farms and are accompanied by health certificates issued by the mainland authorities. The Food and Environmental Hygiene Department (FEHD) will also carry out inspection at the boundary control point. Pigs have to go through ante-mortem and post-mortem inspection in the slaughterhouses. Only pigs which pass the inspection can be supplied to the market.

Apart from stepping up inspection of imported live pigs, FEHD has again reminded slaughterhouse staff and people who might be in contact with live pigs to pay attention to personal hygiene, and to wear masks and appropriate protective gear at work. To date over one-3rd of those involved in pig farming and slaughtering trade have received the human swine influenza vaccine. The Agriculture, Fisheries and Conservation Department will continue to inspect and closely monitor the health condition of pigs on local pig farms. Any pig with clinical signs of swine influenza will be carefully examined and samples will be taken for diagnosis.

Michigan Wild Bird Surveillance (USDA, as of March 4): For the 2009 testing season (April 1, 2009-March 31, 2010), HPAI subtype H5N1 has not been recovered from any of the 111 Michigan samples tested to date, including 58 live wild birds, 39 hunter-killed birds and 14 morbidity/mortality specimens. H5N1 HPAI has not been recovered from 18,942 samples tested nationwide. For more information, visit the National HPAI Early Detection Data System at http://wildlifedisease.nbii.gov/ai/.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at http://www.michigan.gov/emergingdiseases.

Please contact Susan Peters at PetersS1@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Contributors

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MDCH Bureau of Laboratories – Anthony Muyombwe, PhD; Victoria Vavricka, MS

Table 1. H5N1 Influenza in Poultry (Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 3/4/10)

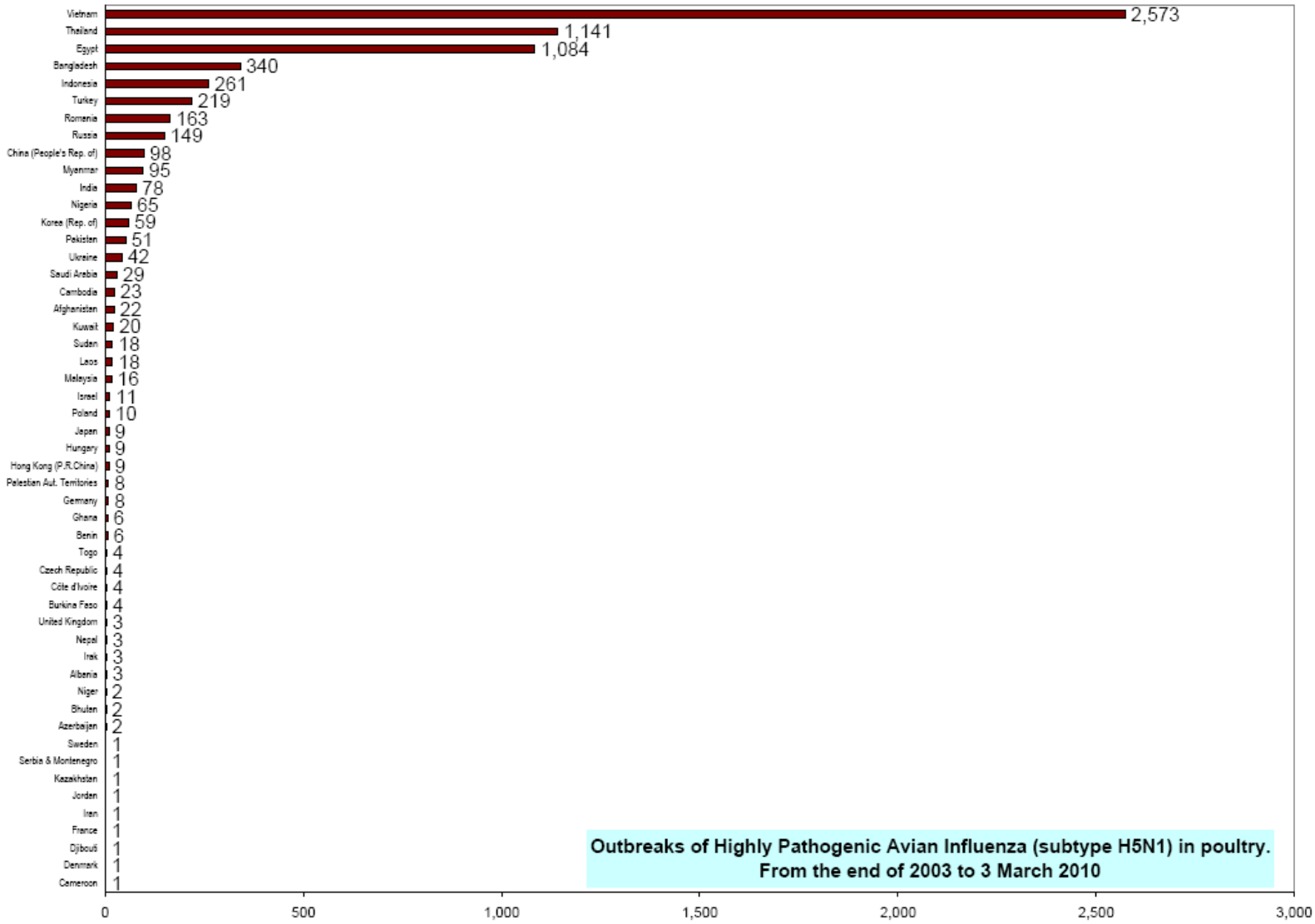

Table 2. H5N1 Influenza in Humans - Cases up to March 4, 2010. http://www.who.int/csr/disease/avian_influenza/country/cases_table_2010_02_17/en/index.html. Downloaded 3/4/2010. Cumulative number of lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		2010		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	0	0	9	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	0	0	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	39	4	14	3	104	30
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	21	19	1	1	163	135
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	3	1	115	58
Total	4	4	46	32	98	43	115	79	88	59	44	33	73	32	18	5	486	287